THE

JOURNAL OF GAS LIGHTING.

PUBLISHED QUARTERLY,

WITH AN INTERMEDIATE SUPPLEMENT ON THE 10TH OF EACH INTERVENING MONTH.

No. 5.] LONDON, JUNE 11, 1849. SUPPLEMENT, [Price 4d. Stamped. „ 3d. Unstamped.

THOMAS ALLAN and CO., SPRING-BANK IRONWORKS, GLASGOW, have always on hand a large assortment of GAS PIPES and other Castings connected with Gas Works, which they beg to solicit orders for.

R. LAIDLAW AND SON, GAS ENGINEERS,

BRASS AND IRON FOUNDERS AND MANUFACTURERS OF GAS METERS, MALLEABLE IRON AND BLOCK-TIN TUBES, GAS LAMPS, PENDANTS, BRACKETS, AND FITTINGS, RETORTS, PIPES, and all APPARATUS required for GAS WORKS, of the best quality.
ORDERS promptly executed, and ESTIMATES given.
EDINBURGH AND GLASGOW.

CAST Iron Retorts, Socket Pipes, and Connections of every size suitable for Gas and Water Works, Lamp Columns, Wrought Iron Tubing, Hot Water Pipes, Rain Water Pipes, and Eaves Gutters, in stock, and sold on the lowest terms, at LYNCH WHITE'S Iron Wharf, 66, Bankside, London.

M. KELLY, Cast Iron Wharf, 31, Bankside, London.—Retorts of superior quality, Socket and Flange Pipes, Bends, Branches, Syphons, and every description of Castings for Gas and Water Works, Gasometers, Tanks, Purifiers, Condensers, &c., erected complete, or the materials supplied.
Gas Valves and Sluice Cocks on an improved principle. Patent Gas Tubing and Connections.
A stock of the above articles kept.
The Pipes and Retorts supplied by M. K. are cast vertically, which ensures soundness and equality of thickness throughout.

CAST IRON PIPES, &c.

TO Gas Companies.—J. Jones, Iron- bridge Wharf, No. 6, Bankside, London, keeps a large Stock of Gas Mains, with Bends, Branches, Syphons, Tees, Collars, Caps, Reducing Pipes, &c.
Octagon Lamp Posts and Irons, Flange and Hot-water Pipes, with all the usual connections; also Rain-water Pipes, Half-round and O. G. Gutters, Barrow and Navy Wheels.
Cast and Wrought Ironwork for Stable Fittings, viz., Mangers, Hay-racks, Ramps, Cills, Posts, Stable-traps, Gratings, Street Gutters, &c. &c.
The above, as well as numerous other Castings, at very low prices, at JONES'S, Iron-bridge Wharf, No. 6, Bankside, Southwark, London.

PATENT FIRE-CLAY RETORTS.

ORLANDO BROTHERS and RAIL- TON, Manufacturers of O. Brothers's Patent, beg to state that these RETORTS being made in ONE ENTIRE OPERATION, and in ONE PIECE of any required shape, length, breadth, and height, are not liable to Cracks and Fissures, of which there is a just and general complaint; and they are consequently superior to and cheaper than any hitherto manufactured.
Prices per foot in length:—

	At Blackburn.	In London.
12 in. by 12	7s. 0d.	8s. 3d.
14 in. by 12	8s. 0d.	9s. 6d.
16 in. by 12	8s. 6d.	10s. 3d.
18 in. by 15	9s. 6d.	11s. 6d.
19 in. by 13	9s. 6d.	11s. 6d.
24 in. by 15	11s. 6d.	13s. 9d.

exclusive of the angle-iron flanges.
References and further particulars may be obtained on application to the Patentee, Gas Works, Blackburn; or to Messrs. George Barlow and Son, 9, Charterhouse-square, London.

PATENT FIRE-CLAY RETORTS.

MESSRS. GEORGE BARLOW and SON have the satisfaction to announce that they have been appointed the AGENTS of Messrs. ORLANDO BROTHERS and RAILTON, for the Sale in London and the adjoining counties of Mr. Brothers's improved and most valuable RETORTS, the prices, &c., of which will be found in the advertisement above.
Iron Retorts, Main Pipes, Tanks, Gasometers, Condensers, Washers, Purifiers, Valves, &c. &c., supplied as usual. Also such as have become insufficient for an increased demand for gas, sold or exchanged on commission.—9, Charter-house-square, London.

IRISH MANUFACTURE.

JAMES GRAY and CO. continue to make every description of FIRE-BRICKS, TILES, and BLOCKS used in setting Retorts, all of the very best fire clay.
Irish Gas Companies can be supplied with as cheap and good an article, manufactured in their own country, as any they can import.
Fire-clay and Brick Works, Coal Island, near Dungannon, county of Tyrone, May 28, 1849.
N.B. Flooring, Ridge, and Oven Tiles, Water Pipes, Flue Linings, &c. &c.

TO GAS COMPANIES.

JOHN EUNSON, Gas Engineer and Contractor for the Erection of Gas Works, continues to manufacture CLAY RETORTS upon the most approved principle, and of the best material.
Wolverhampton, May 5, 1849.

WILLIAM SUGG, Gas Engineer and Manufacturer of Patent Wet and Dry Gas Meters, combining all the latest acknowledged improvements; Brass Founder, Gas Fitter, and Lamp Contractor; Manufacturer of all kinds of Plain and Ornamental Gas Apparatus, and Contractor for the Erection of Gas Works. Designs and Estimates submitted; Station Meters and Governors of any size.
Gas Meter and Apparatus Works, 19 and 20, Marsham-street, Westminster.

A. WRIGHT, Gas Engineer and Meter Manufacturer, 55, Millbank-street, near the Houses of Parliament, Westminster, respectfully calls the attention of Gas Companies and Engineers who are not yet provided with Station Meters to the fact that he has erected two of the largest machines of this kind in existence, the one for the Chartered Gas Company, London, the other for the Hibernia Gas Company, Dublin, for both of which he has obtained the highest testimonials.
To this branch of business A. W. devotes much attention, as well as to the Manufacture of all kinds of Experimental Machinery for Gas purposes.
Consumers' Meters of all sizes at the usual prices, with a liberal discount to wholesale purchasers.

PATENT GAS METER MANUFACTORY,
No. 66, Snow-hill, London.

WILLIAM SMITH, by the improvements he has made in the Wet Meter, and which he has secured by her Majesty's Royal Letters Patent, the accuracy of their registry is rendered certain by the introduction of the adjusting slide and hydraulic, whereby a Perfect Water Level is readily obtained, and the Hydraulic precludes the possibility of abstracting water from the meter by increased pressure or otherwise, thus surmounting the great desideratum of the Wet Meter. In his Patent Equitable Gas Meter neatness and strength are combined, the backs and fronts of the case being stamped by powerful machinery out of thick plate iron (tinned or galvanized); and the internal construction is of the best metal, which will resist the action of any impurity in the gas.
Old Meters may readily have the adjusting slide and hydraulic applied, thereby having accurate measurement assured.
Station Meters, Governors, &c., made on the shortest notice.

ESTABLISHED 1827.

JOHN BEVERLEY and SON, Manufacturers of the Improved METALLIC GAS METERS, 68, BRIGGATE, LEEDS,
In returning thanks to Gas Companies, and those who have been pleased to patronize the use of their Gas Meters, take leave to observe that they still continue to make the outer cases of Cast Iron, which are carefully fitted and put together with screws, and the interior wheel or drum of a composition that has stood the test of years.
Dealers in all kinds of Gas Fittings, Tubing, &c. &c.

Just published, in 8vo., pp. 64, price 1s. 6d.; or, free per post, 2s., on applying to the Author,
GAS Lighting: its Progress and its PROSPECTS; with Remarks on the Rating of Gas Mains, and a Note on the Electric Light.
By J. O. N. RUTTER, F.R.A.S.
John W. Parker, West Strand, London; and all Booksellers.

TO GAS COMPANIES.

A YOUNG Man, who has for nearly four years been employed as Clerk to a Gas Company, where he has had the sole management of the Company's books, is desirous of obtaining a Situation as CLERK. Most satisfactory recommendations can be given as to character and abilities.—Address to B. J., care of Mr. Strange, 21, Paternoster-row, London.

THOMAS EDGE'S Patent Wet and DRY GAS METER WORKS, Brass Foundry, Gas Fitting, and Chandelier Manufactory, Westminster.

TO GAS COMPANIES.

ON Sale, a quantity of New and Secondhand GAS APPARATUS, of modern construction, suitable for the erection or enlargement of Gas Works.
Apply to Mr. Richardson, Engineer, Dudley.

ESTABLISHED IN 1834.

S. KING, Gas Meter Manufacturer, 21, Cock-lane, West Smithfield, London.
Meters made of the best materials and workmanship, with all the recent improvements, and warranted correct in registration.

H. JONES, Gas Meter Manufacturer, No. 41, OLD-STREET, St. Luke's, London, begs respectfully to call the attention of Gas Companies to his latest improvements in the WET METER, by means of which water cannot be abstracted, neither can Gas by any possibility pass through the Meter without registering.

TO Capitalists. — A person having £3000 or upwards at command may be introduced to an old-established Business in the manufacture and supply of Gas Apparatus. The premises are spacious and on the water-side, and the profits have realized £2000 a year.
Address by letter, prepaid, to A. Z., care of Mr. Wright, 55, Millbank-street, Westminster.

CHEAP Gas.—Shares in the following Metropolitan Gas Companies to be SOLD, viz.:—

	Shares.	Paid.	Price.
Chartered	£50	£50	£46
Brentford	50	50	46
British	40	18	14
Phœnix	50	48	30
Equitable	50	50	26
London and Vauxhall	50	50	10
Ratcliffe	100	90	75
South Metropolitan	50	25	22

Apply to CHARLES D. CROSLEY, Stock and Share Broker, Sun-court, Cornhill.—June 1, 1849.

PATENTEES' WHARF ROAD, CITY ROAD, LONDON. GUTTA PERCHA COMPANY.

GUTTA Percha Tubing, being unaffected by moisture, acids, alkalis, grease, &c., is useful for the conveyance of Gas, Water, Oil, Chemicals, Liquid Manure, &c. It is peculiarly valuable for Drain and Soil Pipes. In case of any stoppage, an incision can be made in the tubing with a sharp knife, and readily closed again by means of a warm iron. Its strength is extraordinary; the small half-inch diameter tubing having resisted a pressure of 250lb. on the square inch without bursting.
Gutta Percha is totally impervious to wet, and may be steeped in water or buried in damp or marshy grounds for years, without undergoing any material change; IT IS NOT SO LIABLE TO INCRUSTATION, and, from its peculiar property as a non-conductor, is not affected so soon by the frost of winter as metal piping.
The smaller sizes of the Tubing may be had in lengths of 100 feet, and the larger sizes of 50 feet, each.
The extraordinary power possessed by Gutta Percha Tubing as a CONDUCTOR OF SOUND renders it invaluable for conveying messages from one room or building to another. Conversations may be carried on between persons on the ground floor and the attic of the highest building as distinctly as though they were close to each other. The saving of time and labour which these Speaking Tubes will effect commends them to the notice of the proprietors of Mines, Mills, Warehouses, Hotels, &c., as well as to Householders generally.
Every variety of Gutta Percha Articles manufactured at the Company's Works, Wharf-road, City-road, London; and sold by their Wholesale Dealers in town or country.

TO Gas Fitters, Brass Finishers, &c. To be disposed of, the LEASE and GOODWILL of an old-established BUSINESS.
Apply, 12, Rufford's-row, Islington, London.

M. SHEEN, Gas and Railway Lantern Maker, 90½, Holborn-hill, begs to inform Managers of Gas Works, &c., that she continues to contract and supply Lanterns on reasonable terms, and keep them in repair by the year.

METER INDICES.

J. CLUER, Gas Meter, Index Maker, and Model Machinist, No. 4, Bowling-green-lane, Clerkenwell, London.
INDICES and all other Apparatus for Gas Meters of every size and kind, made on the shortest notice, of the best metal, and of superior workmanship.

DEANE, DRAY, and DEANE respectfully solicit the attention of Gas Companies and others to their Modern and Extensive Selection of CHANDELIERS, in Ormolu, Artistic and other Bronzes, Glass, and Opal; combined with a large Assortment of Pendants, Brackets, Pillars, and Gas Burners, present unusual advantages to those fitting up their establishments for Gas-lighting.
Sole City of London Agents for the Patent Shadowless and Cylindrical Sun Gas Burners.
3, ARTHUR-STREET EAST, London-bridge.

CAST-IRON MAIN PIPES FOR GAS OR WATER. STEWART'S PATENT.

ALEXANDER REID, Monument Chambers, 14, FISH-STREET-HILL, London, is now prepared to undertake contracts to any extent for the supply of Patent Cast-iron Pipes, either of English or Scotch make, and of Hot or Cold Blast Iron.
These Patent Pipes, being cast vertically in one piece, are perfectly formed, the outer and inner surfaces truly concentric, quite cylindrical in the bore, straight in the axis, and present an equal thickness of metal throughout.
Samples may be seen, and prices given, on application as above.

CONDENSER for Sale, at the Bristol and Clifton Gas Works, Limekiln-lane, Bristol, consisting of a box, 18 ft. 8 in. long, with divisions, and 32 vertical pipes, 9 ft. long, and 7 in. diameter, connected together at the top by half-circle bends. It is capable of condensing from 5000 to 6000 cubic feet of gas per hour; and the total weight, including the screw-bolts and nuts, is upwards of five tons.
For further particulars apply at the Gas Works; or to Mr. Barlow, Civil Engineer, 32, Bucklersbury, London.

FOR Sale, Dip Pipes, 3 in. diameter.
H Pipes, 3 in. diameter.
7 in. Slide Valves.
Solid Columns, 7½ feet long, 4 in. diameter.
Hollow Columns, 8½ ft. long, 4½ in. diameter.
Iron Door Frames, 4 ft. 9 in. by 6 ft. 9 in. in the clear.
Small Garden Posts, 3 ft. high, 3 in. diameter.
Two old Purifiers, 6 ft. 6 in. by 9 ft. and 2 ft. deep.
Old Castings, 12½ ft. high, for the support of a roof.
Apply at the SOUTH METROPOLITAN GAS WORKS, Old Kent-road, London.

FIRE BRICKS.

JAMES NEWTON, late J. Newton and Son, Falcon Dock, Bankside, London, Depôt for Stourbridge and Newcastle Fire Bricks, Lumps, Tiles, Fire Clay, and Clay Retorts, &c., for Gas Works.
Goods made to pattern on the shortest notice.

BRETTELL and WHITEHOUSE, late Brettell and Rufford, beg to inform Gas Companies and others requiring best STOURBRIDGE BRICKS and CLAY that they continue making all kinds of BRICKS, and warrant all their goods fully equal to any house in the trade.
Fire Brick Works, Stourbridge.

FIRE Clay Gas Retorts.—The subscribers have for many years been extensive manufacturers of FIRE CLAY RETORTS, and supply most of the works in the centre and east coast of Scotland. They will guarantee their Retorts to last from one to two years, and to give satisfaction. They are cheaper than iron, carbonize coal more quickly, and with less fuel. Their Retorts may be seen at work at Poplar Gas Works, London.
Price £2 to £3, according to size.
Fire Bricks and all other Fire Clay Articles furnished of best manufacture, and at moderate prices.
FRASER and SANDERSON.
Inverkeithing, March 6, 1849.

Annual Expense of Retorts at the Dunfermline Gas Work, showing the difference of Expense betwixt Iron and Inverkeithing Clay Retorts.

To May, 1835, Iron Retorts used . .	£161	1 10
1836, Do. . .	154	17 9
1837, Do. . .	167	17 0
1838, Iron, and Clay commenced	137	3 0
1839, Iron and Clay . .	81	18 0
1840, Clay Retorts . . .	20	5 0
1841, Do. . . .	29	5 0
1842, Do. . . .	22	10 0
1843, Do. . . .	24	0 0
1844, Do. . . .	19	2 10
1845, Do. . . .	14	14 0

TO DIRECTORS AND MANAGERS OF GAS COMPANIES.

GLOBE Patent Tube Works, Wednesbury.—Gentlemen,—We beg to solicit your orders for Iron Gas Tubes and Connections.
Mr. CORNELIUS WHITEHOUSE, the Original Patentee of the Tubes manufactured for so many years by Mr. JAMES RUSSELL, of Wednesbury (and to whom the Patent was disposed), having made further Improvements, which are patented, is thereby enabled to manufacture Tubes of a superior quality to any hitherto offered to the public.
In soliciting your favours we beg to assure you that the most prompt attention shall be given to orders entrusted to our care.—We are, gentlemen, your obedient servants, C. WHITEHOUSE and Co.

IT is a Glaring Fact that Guise's New Brilliant GAS BURNER, which is perfectly shadowless, gives a purer and greater light, with less gas, than any other; and his original Shadowless Gas Burners, which are in such general use, are well known to be the most economical burners yet invented.
J. G. cautions the public against fraudulent imitations, as all his Burners are marked "Guise Patent."
Guise's Catoptric Reflectors are superior to anything of the kind yet invented for brilliancy and power of reflection. One trial will prove these facts. They are to be had of all respectable Gas-fitters, and at the Manufactory, 75, Margaret-street, Wilmington-square, London.

JENNINGS'S

PATENT INDIARUBBER TUBE GASCOCKS.

The Patentee begs to inform all persons interested that the INDIARUBBER TUBE COCK has been found to answer most admirably for all Gas purposes. Great numbers have been used, and references can be given to some that have been in use for twelve months and upwards.

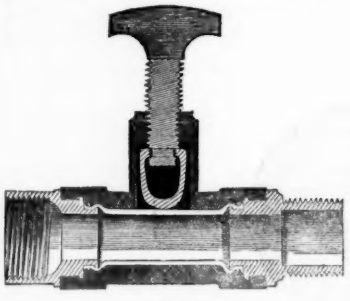

Fig. 1.

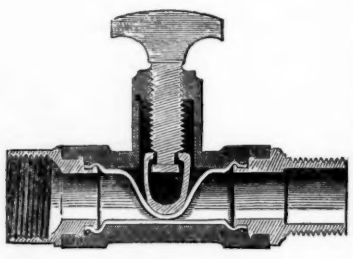

Fig. 2.

The simplicity of this Cock is worthy the attention of scientific men; when open it forms a straight and continuous pipe, free from all obstruction, as shown in fig. 1, and the passage of the gas is impeded, or altogether stopped, by pressing on the OUTSIDE of the tube, as shown in fig. 2. There can be NO ESCAPE laterally, as the working parts have no connection with the interior.
The advantages derived from its use are these: its being free from all friction—will not, like the Plug-cock, become set fast or unsound; it offers as free a passage as the pipe itself; the facility of repair (should it ever need it) is also worthy of attention, as the introduction of a fresh piece of vulcanized rubber Tube will, at any time, make it equal to new.

For Testimonials and Prices apply to the Inventor and Patentee,

GEORGE JENNINGS, 29, GREAT CHARLOTTE-STRET, BLACKFRIARS-ROAD, LONDON.

N. B. All kinds of Cocks for Water Purposes can be had in Iron, and they are warranted to stand any pressure, as the metal casing must *burst* before the Cock can become injured.

For drawing off Wine, Vinegar, Cider, or any Liquor containing Acid, this Cock is invaluable, as no Verdigris can be generated, as is the case with all other Cocks.

THE Gas Question.—Mansfield's PATENT.—New principle of manufacturing GAS at 4s. per 1000 feet, without retort, coal, fire, condensing, purifying, or any of the numerous nuisances, consequent upon the old system. The apparatus is extremely simple, requiring very little trouble. Atmospheric air, being passed through an ethereal liquid, becomes impregnated with a highly-illuminated property. For particulars see abstract of a paper read before the Institution of Civil Engineers, and notices in "The Mechanics' Magazine," April 28; "Chemical Times," May 26; and most of the scientific periodicals of May, 1849. R. HOLLIDAY and CO., of Turnbridge Works, Huddersfield; Sussex-street, Sheffield; 28, Oak-street, Manchester; and 128, Holborn-hill, London, having made arrangements with the Patentee, are prepared to contract for putting up apparatus, supplying Benzole to towns, factories, railway stations, &c. The light, being so free from nuisance in its manufacture, is peculiarly adapted for gentlemen's mansions, and establishments where fabrics of a delicate nature are exposed.

PATENT FLEXIBLE GAS TUBING.

JAMES LYNE HANCOCK'S Vulcanized Indiarubber Hose Pipes and Tubing. Manufactory (and Warehouse), Goswell-mews, Goswell-road, London.
Gas Companies, Engineers, Gas Fitters, and the Trade generally, are respectfully informed this Tubing is now manufactured to any size, from ¼ inch bore and upwards, in 100-feet lengths, and perfectly cylindrical, either with or without a spiral wire inside.
VULCANIZED GLAZED FLEXIBLE TUBING, from ¼ inch up to 1 inch diameter, made in 24-feet lengths; or, covered with silk or worsted, up to 100 feet.
VULCANIZED HOSE, for FIRE ENGINES, BREWERS' USE, and for standing great pressures (Rubber and Cloth combined), made to any length or size to fit the necessary screws, &c.
VULCANIZED INDIARUBBER AIR-TIGHT BAGS, made any size, for Gas Mains, with flexible tubes attached, and fitted with stopcocks complete.

CARTER'S Patent Safety Gas Valve or Main Cock.—Experience has demonstrated the superiority of this Invention as a substitute for the common Main Cock, which is so soon out of order, either becoming fixed or leaky, neither of which is likely to occur with these Valves. They have been several years in use in many of our largest establishments: in the Bank upwards of one thousand are fixed, where, as elsewhere, they are highly approved.
Many of the Gas Companies have adopted them for their Street Lamp Cocks, and thereby prevent the possibility of waste.
They are manufactured of all sizes, from 2-8 to 12 inches bore, and are cheaper than any other description of Cock now in use.
THOMAS LAMBERT and SON,
Patentees, corner of Short-street, New-cut, Lambeth; Manufacturers of Block Tin Tube, and every description of Gas, Steam, and Hydraulic Apparatus.

HARPERS and MOORE, of the Delph Fire-brick and Clay Works, Stourbridge, invite the attention of Gas Companies, Engineers, Oven Builders, and all consumers, to their Stock of FIRE-BRICKS, LUMPS, or BURRS, QUARRIES, CLAY, and other Goods, a large assortment of which is always kept at their London Depôt, No. 7, Wenlock-road, City-road; also Melting-pots for Brassfounders and Metal Refiners. These articles are made in a very superior manner from clay of the very best quality, and have been proved by metal-melters (who can be referred to) to have withstood the most severe tests, and for very long periods.
Shipping orders supplied, and every description of Fire-clay Goods made to pattern or drawings on the shortest notice.
H. and M. particularly invite the attention of Gas Companies to a trial of their Fire-clay Retorts, which they are now making in a very superior manner, and of a quality which, on trial, will be found to surpass anything of the kind hitherto produced. The superior quality and peculiar admixture of their clays enable them to manufacture an article which fully admits of the necessary expansion and contraction, to allow of their being let down at the end of a season, when the usual supply of gas is not required, and again put to work for successive seasons without fear of cracking or leakage from any other cause.
H. and M. further beg to direct attention to the evidence of Mr. Croll, given before a Committee of the House of Commons, relative to the use of Clay Retorts (see "Gas-lighting Journal" of April 10, 1849, pages 43 and 44). The Clay Retorts there referred to by Mr. Croll were made at, and supplied from, the works of Harpers and Moore, as above; they were put to work in August, 1846, and are now in full and constant operation.
Testimonials can be seen, and further information obtained, on application (if by letter, prepaid), addressed to Mr. S. Partridge, as above.

REVOLUTION in Light.—Public NOTICE.—What Lights are these? Lights that would have made the ancients gaze—living men admire.—The Diamond Lamp gives every satisfaction; its superior will never come.—The Vertical Lamp is shadowless, and simple to perfection.—The Pearl Candle Lamp is worth a hundred other candle lamps. To sell the ordinary candle lamp is now impossible: the public have long enough been pestered with such rubbish.—The Star, the Golden, the Glass, the Ring, and the Reflecting Gas Burners are beyond comparison the most brilliant of Gas Lights. The Metropolitan Light Company her Majesty's dominions with light supply. The public will have none other. The Eight New Lights are constantly burning at the Company's Establishment, RICHARD CLARK, Resident Manager, 447, West Strand, next door to the Electric Telegraph Company.

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TO CORRESPONDENTS.

Communications cannot be attended to unless authenticated by the name and address of the writers.

MR. RADLEY.—*We are of opinion that we shall best promote your object by delaying the publication of your communication till your projected "Metropolitan and Provincial Illumination Improvement Company" has proved that gas of a density of ·540 can be manufactured and delivered into the mains at a less cost than* 1*s.* 3*d. per* 1000 *feet. When you have accomplished this, we shall be happy to receive your promised communication.*

W. S. (Dover).—*You had better address yourself to the gas company if you consider the present price of gas too high. A large reduction was made two or three years since, and we have no doubt the company will continue to make further reductions as their means allow. You must bear in mind that the public lamps are lighted at a ruinously low price, to compensate for which an increased price must be paid by the private consumer.*

CIVIS (Bath).—*We can offer no opinion on the question you have submitted to us without a personal investigation of all the circumstances.*

NOTICES.

☞ The press of matter compels us to omit our usual Share List and Price Current for the month.

All communications relative to the editing of the JOURNAL OF GAS LIGHTING, and orders for Advertisements, to be addressed to the Editor and Proprietor, THOMAS G. BARLOW, Civil Engineer, 32, Bucklersbury, London; and persons desirous of receiving the publication regularly are requested to give orders to that effect to their Booksellers or News Agents; or to William Strange, 21, Paternoster-row, London.

The Terms of Subscription are :—

Six Shillings per Annum for the Quarterly Journal and Monthly Supplement, payable in advance.

Post-office orders to be made payable to WILLIAM STRANGE.

Advertisements are inserted at the rate of 5*s.* per six lines, and 6*d.* per line for all beyond, subject to the following discounts, if paid in advance :—

15	per cent. for	3 insertions.
25	ditto	6 ditto.
33⅓	ditto	12 ditto.

The Editor will be particularly obliged by his friends forwarding to him Notices of all Meetings, Trials, or Appeals which it may be interesting to the Gas World to have reported.

Circular to Gas Companies.

Our advertising columns bear conclusive evidence of the declining value of gas property, and more especially of that of the metropolitan companies. Holders are rushing into the market willing to sacrifice their shares at discounts varying from 8 to 80 per cent. upon the sums paid up, terrified at the cry for "cheap gas," and foreboding nothing less than the entire destruction of their fortunes; and yet we see no cause for despair. The time is passed when with suicidal jealousy directors were busily cutting one another's throats by competition, and two companies would double their expenses and lower their prices out of mere spite. A more rational state of affairs now exists, and if shareholders, instead of taking alarm and sacrificing their property, would apply themselves to the removal of the petty jealousies which still interfere with the attainment of a closer union amongst the metropolitan gas proprietary, they would in our opinion still find their property valuable. We hold out no tempting prospect of 10 per cent. dividends and handsome premiums on shares, or places for expectant directors, contractors, and officers, who always form an army in support of any new scheme; nor do we desire to see the railway miracles repeated, by which insolvent companies were made to smile with increased dividends, or out of two bad concerns one good one created, and, by the addition of one or two still worse, the whole appear better still.

We have broached no new doctrine on this subject. The opinions we entertain and announced in our February number are identical with those of every practical and disinterested party with whom we have conversed; and, although they are not sanguine of the success of our endeavours, still, on every available occasion, we shall not omit to point out to directors and shareholders in metropolitan gas companies, that their only resource for escaping destruction in detail, is an amalgamation of their entire interests on an equitable basis. They should not forget that the companies without the boundary of the city of London may, sooner or later, have to reduce their prices to the level of the City companies, whatever that may be, and the sooner they provide against this contingency the better for their own interests. The moment now is favourable for maturing a comprehensive scheme, and being prepared to submit it to Parliament next session, in competition with any project which other parties may then present.

We understand that a project is on foot for the formation of an "Institution of Gas Engineers." There can be no doubt of the usefulness of such an institution, if properly organized, and promoted by parties enjoying the confidence of the profession. We shall rejoice at its success, and shall be happy to co-operate in its foundation.

The depression which exists in gas property generally extends to all trades dependent upon it for remunerative profits. Ironmasters, coalowners, shipowners, and others, are universal in their complaints of the depressed state of their respective trades. We understand that ships have been freighted at Newcastle for the London market at 5*s.* 1½*d.* per ton during the past month: a rate hitherto unheard of. Cargoes of coal have been sold as low as 11*s.* 6*d.* in the Pool.

Correspondence.

PROFITS OF GAS COMPANIES.

SIR,—With a delicacy and good taste which contrast favourably with the disingenuousness of your correspondent D. you have suppressed the name of the place from whence he dates his epistle, and of course of the company to which his strictures are intended to apply. The feelings and motives which dictated this line of proceeding are in all respects creditable to you as a journalist; but, as the letter in question is an admirable sample of what is learnedly described as the *suggestio falsi* and *suppressio veri*, which, being interpreted for the benefit of the writer, meaneth that he is wonderfully prone to falsehood and marvellously economical of truth, perhaps you will permit me, as a shareholder in the concern, to direct your attention to the accompanying copy of the half-yearly report and account, which will speedily convince any one acquainted with the subject that your correspondent may make his mind perfectly easy in respect to the property which he says he has invested in the company.

It will also serve, I think, to exhibit the unfair and uncandid observations of your correspondent in a striking point of view, because it will show,

First, That, at the period to which he refers, only £4 per share had been paid on the capital stock of the company, and therefore that the chairman could not have stated, as alleged, that the purchaser of shares at the then price of £4. 10*s.* would receive a return of nearly ten per cent. thereon; and,

Secondly, That the capital of the company is not composed of 19,000 shares of £5 each, *all paid up in full;* but, on the contrary, is composed of 19,000 shares of £10 each, *on which only £4 had been paid;* or, in other words, that the paid-up capital amounted to only £74,000, while the net profits on the half-year, after deducting 7½ per cent. on the receipt for wear and tear, and 5 per cent. for bad debts, amounted to more than £3000, which fully warranted, I think, a dividend of 3*s.* per share; or, to adopt the words which the chairman really did use, warranted a dividend of "nearly 8 per cent. on the paid-up capital of the company."

There are other matters alluded to by your correspondent to which I shall not refer further than to state that the sum set apart, or reserved to cover wear and tear, has been found more than sufficient for that purpose, and that there is at present a considerable surplus to the credit of the account. A SHAREHOLDER.

May 30, 1849.

Note.—We certainly think that our correspondent D has laid himself open to some of the charges made in the above letter. Had he been candid enough to state that the *whole* rental was derived from the sale of gas by meter to private consumers, at a very moderate rate, our opinion would have been modified as to the prospect of any reduction in the price being called for, at least for some time to come. The report of the last half-yearly meeting of the company, which we now receive, convinces us that the fears of our correspondent are perfectly groundless. The dividend then declared has been duly earned, and we see no difficulty in its being maintained.—ED.

GAS LIGHTING IN MINES.

SIR,—I have been lately perusing your valuable and scientific JOURNAL OF GAS LIGHTING, and have been struck with the great paucity of information that exists in various parts of England on the subject of gas; and, perhaps, in none more so than in this county. If you have any correspondent in its mining district who could furnish you with, first, the monthly consumption of candles; and, secondly, with a description of the great inconvenience miners experience in their use, I am fully persuaded some of your scientific readers would turn their attention to the subject of LIGHTING CORNISH MINES WITH GAS. I am concerned in mining, and the large sum of money we are called on monthly to pay for candles has frequently been a subject of discussion as well as surprise, and this has led me to make inquiries respecting the applicability of gas. Being no engineer, there is one difficulty I cannot well get over, viz., that of sending the gas 100 fathoms or more below the surface; could this be accomplished, the rest is easily carried out.

I shall be glad if these remarks are the means of directing attention to the subject, as I feel fully assured that both capital and talent could be successfully and profitably employed. M. C.

Penzance, May 16, 1849.

IRON AND CLAY RETORTS.

SIR,—In the last number of your paper there is a letter, signed "Aluminium Ferrum," as to the relative merits of iron and clay retorts. In that letter there is the following paragraph:—"A statement has been published giving the experience with clay and iron retorts at the Dunfermline Gas Works. From this the average cost of iron is £161. 5s. 6d. upon eighteen retorts, making 5,104,000 cubic feet per annum; and for ten clay retorts—making 7,500,000—£19. 5s. 7d."

Though we are not named, this paragraph refers to our circular in regard to clay retorts.

Upon that statement various calculations are made to show the absurdity of our assertions, and the honesty and skill of our respected friend the manager of the Dunfermline Gas Works is questioned.

Now, we regret that, before your correspondent (who appears otherwise a fair and distinct writer) inserted his paper in a journal widely circulated amongst our friends and the friends of the manager of the Dunfermline Gas Works, he did not ask us for an explanation of our statements. As he has not done so, we trust you will allow us, in common fairness, to show that one of the statements on which he founds his calculations, and injures the feelings of an intelligent, upright, and successful manager of a gas work, is *untrue*.

On referring to our circular it will be seen that it was during the *winter months* only (*not* during the year) of 1836 that 5,104,000 cubic feet of gas was made at Dunfermline from eighteen iron retorts.

We state also that, during the winter months of 1844, 7,500,000 cubic feet of gas was made from ten clay retorts. This should have been during the year 1844, so that here the error is ours.

The make for *the year* 1836, with eighteen iron retorts, was 7,244,000 cubic feet, and expense of retorts £167. 17s. 9d, exclusive of fire-clay protections, which are not needed for clay retorts; whereas, in 1844, with ten clay retorts, 7,500,000 cubic feet were made, at an expense for retorts of only £19. 2s. 10d. More retorts were fitted up in both cases, though the numbers returned are the greatest number used at one time.

The cost of iron retorts, according to our circular and the above facts, will be, for each thousand feet of gas made, about 5d., *not* 7½d., as alleged by "Aluminium Ferrum," and of clay retorts about five-eighths of a penny—*not* a halfpenny.

We trust this correction of a fact, and which destroys your correspondent's calculations, will lead him to withdraw the uncourteous language used towards the manager of the Dunfermline Gas Works.

Your correspondent indicates there has been partiality in the use of iron over clay retorts; but in the printed annual statements of the profits of the Dunfermline Gas Works, made up from the books, the same figures appear as the expense of retorts as in our circulars, printed, of course, when there could be no object for unduly increasing the cost of the one or depressing that of the other, and before there could have been any idea of their being used to show so great a saving as there is from using our retorts.

Your correspondent refers approvingly to a gas work where the cost of iron retorts was 3½d. per 1000 cubic feet of gas made, and mentions that a manufacturer of clay retorts contracted to supply that work, and keep in repair clay retorts, for 2½d. per 1000 cubic feet of gas made.

We should be glad to supply any gas work with retorts, f. o. b., at 1d. per cubic foot of gas made from them, or to contract with any work of sufficient size to be an inducement, except where carriage would be excessive, to supply and keep in repair their gas retorts for a series of years, on receiving 2d. for each 1000 cubic feet of gas made. We have been successful manufacturers of retorts for many years (indeed, our predecessor was amongst the first who made clay retorts), and we can refer to the manager of almost every gas work in the east and centre of Scotland as to the satisfaction our retorts give. In Scotland iron retorts have long since given place to clay retorts, as less suitable and more expensive. Not a single manager who ever fairly tried our clay retorts ever used iron ones again. The *thrifty* Scotchman is rather surprised his English brethren have not found out, ere this, the superiority of clay over iron retorts.

FRASER AND SANDERSON.

Inverkeithing, May 31, 1849.

CLAY AND IRON RETORTS.

(*Continued from page* 61.)

SIR,—In my first letter I estimated the cost of maintaining clay retorts to be 2·26d. per 1000 feet manufactured, and the cost of iron to be 3.41d. for the same quantity: showing the economy of clay over iron to be 1·15d. per 1000 feet.

The next point that requires consideration is, whether at the same heat they will each generate and deliver equal quantities of gas.

The experiments which have been made to ascertain this are so few in number, and the number of circumstances which may interfere in altering the results under different conditions are so obvious,—such as the pressure acting upon the retorts during the process, the kind of clay used, and the mode adopted in forming it into retorts,—that, although I am about to give some most important experiments which I had lately the good fortune to witness, I do not mean to infer that all retorts would acquit themselves in the same manner if the circumstances were altered; but I rather give these results publicity to show the conditions necessary to the use of clay retorts.

I believe it will be clearly shown from the following experiments that clay retorts, when new, are so porous that much of the gas made in them, if the pressure is excessive, escapes without giving even the indication of a flame in the flues; and it is well to turn the attention of gas engineers to this fact, that they may not only be prepared when fractures occur to repair them, but to be careful in not using clay retorts without first taking great precautions, such as repeatedly charging them with tar and breeze, glazing them internally, or causing those who manufacture them to render them as close and fine in texture as possible.

I believe the Belgian and French clay retorts are not by any means so subject to this fault of allowing the exudation of gas as our English ones; and this no doubt arises from the great care taken in the mixing of the clay, and other precautions, in their manufacture.

It would be invidious of me to quote the gas works at which those experiments were made, or the name of the maker of the retorts. I will, therefore, merely state that at the gas works in question a change from iron to clay retorts had been made; and a sudden falling off in the quantity of gas produced per ton of coal was the consequence. This gave rise to an inquiry; and, as some of the iron retorts were still in use, it was suggested that three beds of each, comprising nine clay and nine iron retorts, should be tested against each other.

The pressure upon the mouthpieces was 11 inches. The retorts were each charged with the same quantities of coals. The heat of the iron retorts was kept as near as possible to the customary point. The clay ones were maintained at a greater heat. The iron retorts had been in use six months, but were in good condition. The clay ones had been worked one month, and had no perceptible leakage.

The following are the results obtained:—

Products of 15 *Cwt. of Coals distilled in Nine Clay Retorts.*

Time.	Meter Index.	Feet of Gas made.	Feet of Gas per Ton.	Specific Gravity.	lbs. of Gas made.	lbs. of Gas made per Ton of Coal.
10 o'clock	9·7·0					
11 —	9·8·0	1000	1333	·520	39·00	52·00
12 —	9·9·2	1200	1600	·515	46·35	61·80
1 —	1·0·0.7	1500	2000	·445	50·06	66·75
2 —	1·0·2·1	1400	1866	·375	39·37	52·50
3 —	1·0·3·0	900	1200	·315	21·26	28·35
		6000	8000		196·04	261·40

Products of 15 *Cwt. of Coals distilled in Nine Iron Oval Retorts.*

Time.	Meter Index.	Feet of Gas made.	Feet of Gas per Ton.	Specific Gravity.	lbs. of Gas made.	lbs. of Gas made per Ton of Coal.
11 o'clock	1·2·9					
12 —	1·4·3	1400	1866	·518	54·39	72·52
1 —	1·6·0	1700	2266	·493	62·85	83·81
2 —	1·7·6	1600	2133	·450	54·00	72·00
3 —	1·9·0	1400	1866	·381	40·00	53·34
4 —	1·9·7	700	933	·313	16·43	21·91
		6800	9064		227·67	303·58

It will be seen from this that the

	Per Ton.		
Iron retorts produced ..	9064 feet of gas	=	303·58 lb.
Clay retorts	8000 feet —	=	261·40
The difference in favour of iron being	1064 feet —	=	42·14

During the operations the outsides of the retorts were examined, but no perceptible leakage could be detected.

To account satisfactorily for this leakage, one retort of each kind was selected as a sample, and a three-quarter pipe was connected to the mouthpiece, through which gas was admitted into the retort; the lids being luted over, and the gas passing into the retort being measured through a meter, the quantity absorbed or leaked by each was thus ascertained.

In case any of your readers should feel disposed to repeat this experiment, I should advise a small piece of coal to be thrown into the retort before luting over the lid, to expel any air, and thereby prevent explosion.

The result of this trial was that the iron retort, under 9-inch pressure, absorbed 4 feet per hour; and, as a single retort would take 60 hours to carbonize one ton, this would have amounted to a loss of 400 feet per ton. The clay retort, at the same pressure, leaked 21 feet per hour, equal to 1260 feet per ton.

The clay retort was then tested under 2-inch pressure, and the absorption was only 5 feet per hour. Now, the leakage of gases through orifices is well known, under different pressure, to follow the law of being directly as the *square root* of the head of water pressing upon them. In this case it was not so, but *directly* as the heads of water—a contradiction to a general rule so important that it requires other experiments to substantiate its truth.

Supposing it to be true, then the leakage, or absorption, during the manufacture in clay and iron would stand thus by proportion:—

If iron leaked 400 feet at 9-inch pressure, it would, at the working pressure, 11 inches, leak .. 9 : 400 :: 11 : 489 feet, and clay ..... 9 : 1260 :: 11 : 1540 feet. Iron retorts thus giving a loss of 1051 feet less than clay; which result agrees so nearly with the former experiment that it may, without much presumption, be taken as conclusive.

Reasoning upon these facts, it will be clear that, at the same heat, clay cannot give so good a result as iron; but if the texture of the clay is close, or if carbon has stopped up the pores, which will be the case after about six months' use; or if the pressure be ightened either by an exhauster or by diminishing the pressure of the gas-holders, purifiers, &c., the cause of loss being thereby removed, clay retorts may approximate very closely in their results to iron. The best practical proof of this is, that the clay retorts upon which the foregoing trials were made gave, at the end of six months, an average of 9300 feet per ton.

I have also, in clay retorts, from coals of the same kind, at a small gas work, where the pressure on the retort did not exceed 4 inches, produced 10,000 feet per ton, the extra 1000 being due to the high heat at which the carbonization was carried on.

It is better, therefore, frankly to admit that clay retorts are inferior to iron in this respect. And this brings me back to the preface of my first article, in which I speak of circumstances such as the price of iron, gas, and fuel having something to do with their relative economy.

I believe that in a small works, where the pressure is light,—where, on the one hand, coal is cheap, and, on the other, iron retorts and the *skill* necessary to erect them is dear,—that, admitting the foregoing experiment its full force, clay retorts will, notwithstanding, be found the most economical.

I will, with your leave, continue this subject in the next number of the JOURNAL, apologizing for having occupied so much space.

ALUMINIUM FERRUM.

ON COAL AND ITS PRODUCTS BY DISTILLATION.

(*Second Notice.*)

Westminster, May 4.

SIR,—There is nothing more agreeable to an experimenter than to find his results in accordance with those of others engaged on the same subject; or, where any slight difference occurs, to be able satisfactorily to assign a cause for it.

In this respect I have been particularly fortunate in the analysis given in your first number, of Ramsay's Newcastle Cannel, which seems to have been investigated simultaneously by Dr. Fyfe, Drs. Miller and Leeson, and myself. (See JOURNAL of April 10.) The gaseous products given by the former are 9746 cubic feet, of specific gravity ·554 to ·580, being a greater quantity of gas, but of inferior quality to that obtained by me; however, the two statements will be better contrasted by the respective weights given in pounds.

Thus—

	Feet.	Mean Sp. Gr.	Reciprocal.	
Dr. Fyfe	9746 ×	·567 ×	0753 =	415 lbs.
Myself	9106 ×	·604 ×	0753 =	410 lbs.

The difference being only 1 per cent.

The illuminating power of the gas is not definitely given by Dr. Fyfe. Drs. Miller and Leeson, in your journal of the same date, give the illuminating power as 2·00, the London gas being 1·00. In this I quite agree; they, however, give the average specific gravity as ·731, which is clearly wrong: first, because it does not correspond with Dr. Fyfe's experiments, nor my own; and, second, because it is quite at variance with the illuminating power in their own report. Pure gas of ·731 will give an illuminating power of 3·00 at least.

The gas, by their statement, would stand thus:—

Cubic Feet.	Spec. Grav.	Reciprocal.	
9667 ×	·713 ×	·0753 =	529lb.

I have little hesitation in saying this is inaccurate.

I am afraid the specific gravity apparatus used was not a good one, which may have led to the error.

Before proceeding with the analysis of other specimens of coal, it is necessary to remark that the standard of value which I had been at so much trouble to establish, and which I expected would have lasted during these experiments, has been suddenly altered: I allude to the gas with which I am supplied having increased in specific gravity about 6 to 7 per cent., and in illuminating power about 10 per cent., 5 feet being now equal to 13·9 standard candles. I congratulate the public on the change, however much it disturbs my arrangements, and hope the improvement will not be limited to its present amount. Let the gas companies move on in this, the true course, and their dividends will soon increase by extended consumption.

I will now give the results of two experiments, with a specimen of Wemyss cannel. This coal is very similar to the Lesmahago cannel, but harder, darker in colour, coarser in grain, and of a more uneven fracture. It has a specific gravity of 1·235: the resulting coke being inferior to the Lesmahago, containing, I think, more earthy matter (this, however, I will investigate when comparing the coke from coals generally). The coke is from ·5 to ·6 specific gravity.

FIRST EXPERIMENT.

WEMYSS COAL.

	lbs.		
Coke, per ton.....	1124·5	Gas, in cubic feet..	10,976
Gas do.	551·4	Specific gravity....	·670
Tar do.	224·0		
Loss	340·1		
	2240·0		

SECOND EXPERIMENT.

	lbs.		
Coke, per ton.....	1188·0	Gas, in cubic feet..	10,192
Gas do.	528·0	Specific gravity ...	·691
Tar do.	197·0		
Loss	327·0		
	2240·0		

Water and ammonia so little that it may be neglected.

The illuminating power of this gas at specific gravity ·670 = 2·47, London gas being 1.

The Wemyss coal is hence entitled to rank first, among the specimens given, as a gas-producing coal; whether the inferiority of the coke is sufficiently great to compensate for this must be decided, by practical men, on the large scale.

The tar from this coal is thin and oily, and will no doubt yield much essential oil by distillation; it will also give great scope for improvement in carbonization, for I believe much of it may be converted into gas by proper treatment.

Having obtained another specimen of Wigan cannel, I will proceed to give the results from it; and this I do with some diffidence, knowing how highly it has been spoken of by others. I shall, however, be happy to exchange specimens with any one who can show a better result from it than the following.

The Wigan cannel is the most beautiful in appearance of all the cannels I have seen, the natural divisions in it presenting a straight, smooth, shining surface; but, when broken, its fracture is irregular and pitchy in appearance. It has the same peculiarity as Ramsay's cannel, of becoming semi-fluid when put into the retort; in this respect resembling caking coal, the resulting coke bearing no resemblance to the original coal.

The Wemyss and Lesmahago, on the contrary, but more particularly the former, in undergoing carbonization, expand, but do not dissolve. This difference in character should, in my opinion, form the basis of a classification of cannels. The following is the working average which I have obtained:—

WIGAN CANNEL.

	lbs.		
Coke, per ton.....	1326·0	Gas, in cubic feet	9,408
Gas do.	338·0	Specific gravity.....	·478
Tar do.	250·0		
Loss. ...	326·0		
	2240·0		

Illuminating power .... 1·5

As the gaseous products from the four cannel coals investigated

in this and the preceding article are not to any extent rendered heavier by impurities, their respective weights of illuminating matter may be taken as an index of their value; thus :—

Wemyss	539 lb.	per ton.
Lesmahago	483	—
Ramsay's	410	—
Wigan	338	—

The Lesmahago consequently yields 56lb. less gas than the Wemyss; Ramsay's, 73lb. less than Lesmahago; and Wigan, 72lb. less than Ramsay's. These coals, therefore, follow each other in intervals of nearly equal distances as to their gaseous products, and it is surprising how these differences are indicated by their external appearance. The Wemyss is of a dark sooty colour, stony fracture, coarse in the grain, and very hard. The Wigan is a bright jet colour, fracture like pitch, and comparatively fragile; Ramsay and Lesmahago forming the links between in colour, fracture, and hardness; the former being likest to the Wigan; the latter, to the Wemyss.

No description can possibly bring this to the mind like an inspection of the specimens themselves, and I intend, therefore, shortly to fit up a few geological cases, showing these varieties as well as those which occur from the Wigan to the pure anthricite. The bare inspection of such a case, containing the coal and coke from eight or ten specimens properly chosen, will do more for the understanding of the nature of coals than any literal explanation.

The coke from the foregoing specimens are also strikingly illustrative of their relative positions, the Wemyss being so like the charcoal from wood that it might be mistaken for it, while the Wigan resembles the coke from the Newcastle coal.

I have reason to believe, from various matters that have presented themselves to me during my recent investigations, that the four kinds of cannel treated of are all derived from the remains of pines or other resinous trees, and that the differences of their products are to be accounted for, not by any difference in the kind of vegetable matter from which they are derived, but by their different stages of decomposition.

The Wemyss cannel approximates nearest to wood, and many specimens of it can, by a moment's inspection, be pronounced to be derived from the trunk of a tree or an agglomeration of leaves and stems.

The Lesmahago cannel may also be separated into pieces derived from different sources, as indicated by the fibrous marks upon them; this, however, can be done with less certainty than in the former instance, on account of its more advanced state of decomposition.

Ramsay's cannel and Wigan are both too far advanced in decomposition for tracing any marks of vegetable structure.

In the two first-mentioned cannels I have found that more gas can be made from those specimens that bear the marks of being derived from wood than from those formed by a combination of leaves or stems.

As a general rule for estimating the qualities of cannel for gas purposes, by inspection, I consider those of a dull sooty colour the best; if a shade of brown is perceptible, or if the coal when struck emits a very dull sound, then it has not arrived at the stage of decomposition most suitable for the production of gas. If, on the other hand, it has an iron-grey appearance, or runs into a bright jet colour, then it has passed the most favourable stage.

In your next number I think I shall be able to show that our Newcastle fields of coal have also an origin similar to the cannels herein mentioned, being, however, still further advanced in decomposition.

Judging from some specimens I have of Welsh cannel coal, in which the marks of the less resinous woods are perceptible, I believe their difference from the Newcastle fields generally to be caused by a difference in their vegetable origin: thus the Welsh cannel, derived from hard wood, is inferior for gas purposes to some of the previous specimens, although in the same stage of decomposition. A. WRIGHT.

Note.—The coke from Lesmahago cannel was stated at ·800 in the last article; this is a mistake: it is between ·5 and ·6. Good oven-made coke from Tanfield coal I find ·985 specific gravity.

GAS FITTINGS.

SIR,—Having noticed that in one of your numbers, in which you refer to the mode under which we are permitted to carry on the fittings here, you say only *iron pipes* are allowed to be used, I beg to correct you on this point, as we are allowed to use copper and tin under article 1 of the Regulations.

As, perhaps, you may find some of the rules laid down here of use in the course of your remarks, I beg to send you a copy of our regulations and forms of notice. I certainly think that, where fittings are to be let out on hire, the companies ought to be bound down, under strict rules, to make them good and keep them in good repair, or gas will soon have many enemies; as it will be to the interest of unprincipled mechanics to do their work badly for the sake of getting a second job in repairing it. C. H. C.

Hamburg, May 29, 1849.

REGULATIONS

Concerning Gas Fittings in the Interior of Buildings, as well as the Protection of the Gas Light on Public Property.

Article 1. The tubes employed for fitting up the interior of houses must be made of wrought iron, brass, or copper; tubes of drawn tin may also be made use of at such places, where the application of iron, copper, or brass meets with peculiar difficulties, namely, those of bending, or where the peculiar condition of the locality recommends tin.

Wrought iron tubes, exposed to humidity, must be protected from oxidation by being tarred or covered with some other material of that kind.

Article 2. The joinings of the tubes are to be made in the most durable and solid manner, either by sockets ground in and cemented with iron cement, or by screwing up or soldering; any other manner of joining them improperly, by putting them into one another and fastening them by mere cementing, is not allowed.

Article 3. The conducting tubes are to be laid with a proper fall and in such a manner that they are easily accessible and protected from their being accidentally damaged by any external power. When the tubes are fastened, particular attention is recommended to leave room enough round them at such places where, for instance, in crossing the wall, by a sinking of the building, an injury or the breaking of the tubes might be caused.

Tubes running underneath the floor must be laid in such a manner that the boards which cover them, especially at the connecting places, can easily be taken away.

The laying of tubes through spaces locked up and inaccessible is carefully to be avoided.

Article 4. The cocks must be arranged in such a manner that they only make the fourth part of their turn and cannot be removed from the barrel; they must be ground in completely air-tight, just like the connecting pieces in the fittings, and united with the fittings in a solid manner, as recommended in Art. 2.

Article 5. The gas meters, which are to be furnished by the gas company, and examined and stamped by the adjusting commission, must be set quite horizontal at a proper place, where they are protected from strong changes of temperature, as well as from external injury. The gas company is entitled, in every suitable manner, to defend them against any abuse.

Article 6. In case a fire should break out, for the sake of security, such an arrangement must be provided that all tubes of one inch in diameter and upwards may be easily shut off from connection with the main fitting by means of a cock contrived on the outside of the building, or inside next to the entrance.

Article 7. No one is allowed to make use of his gas fittings before a careful examination of their soundness has taken place by the fitter himself, under a pressure of one inch English of mercury, or of fourteen inches English of water.

Where it is thought requisite, the same examination may be made by authority of the Government, as also in general by the board, on which the right of inspection of buildings in behalf of their security against fire is conferred, and who are empowered to take every and all measures for this purpose. The maker of the fittings, when finished, is obliged to deliver at the office of the commission invested with the inspection of gas fittings, as well as at the office of the gas company, printed forms, to be had at the printers, to the senate, in which he declares by the oath taken by him to have proved its soundness and discovered no fault; and he is not permitted, before the expiration of three days, to complete the connection of the gas meter with the pipe in the street. Without being provided with a declaration of this kind, the gas company are not allowed to admit gas into the new fitting under the penalty of 25 rixdollars (about £4. 14s. English) for every contravention; they have to keep a register of all new fittings, as well as of those already in use, with an additional list of the fitters, and remit, every four weeks, a specification of the respective new fittings to the aforesaid commission invested with the control of the gas fittings.

If private individuals should further require an examination and proof of their gas fittings by the technical commission appointed by the senate, they must direct a note for that purpose to , who, for every examination of that kind, is entitled to a fee of 15 marks (about 17s. 6d. English) currency, besides the occasional charges for the transport and working of a proving pump.

Article 8. All additions and alterations to these regulations may be made when they prove useful by experience.

Article 9. All mechanics of this town, intending to occupy themselves with gas-fitting, must previously apply to the senator charged with the management of the police, who will swear them to follow truly these regulations, whereupon their names will be published. They are answerable both for the execution of these regulations and the construction of faultless fittings, and eventually subject to a penalty, from 2 to 25 rixdollars (from about 7s. 6d. English to £4. 14s. do.), fixed by the police, which they are authorized to deduct from the wages of those workmen who have committed the mistake. An equal penalty will be enforced against the makers of the fittings if they neglect the other regulations of this ordonnance. Repeated negligence will cause the licence to be withdrawn by a sentence of the police, the execution of which will be published.

In case of any damage resulting from an evident fault of the fittings, the respective private persons shall be entitled to enforce their claims against the makers of the fittings before the civil court of justice.

Article 10. Particular watchfulness is recommended to such private persons as employ gas light in their dwellings, to pay the utmost attention to all parts of the fittings, that they may be protected from any injury. They must be particularly careful to shut off the lamp-cocks when the lights are put out, as also to shut off the main cock of the main tube mentioned in article 6, and only to open them when they are going to light the lamps. They must give notice of every imperfection which they observe in the tubes, cocks, lamps, &c., as well to the gas company as to the fitter, in order to repair the damage.

Article 11. The gas lights on public property are recommended to the particular care of the public. They enjoy the same protection which can be bestowed on private and state property, and has been

bestowed hitherto on public lighting. Injuries of the same will be prosecuted by a trial and proper punishment.

Hamburg, Nov. 29, 1847.

Form to the Gas Commission.

Herewith I inform the commission instituted for controlling the gas fittings that at the house of Mr. , residing , No. , I have erected gas fittings for lights, which being proved with the pressure ordered I declare to be perfectly tight and answerable to the legal prescriptions, as well as conformable to my own sworn obligation.

Hamburg, , 18.

Form to the Gas Company.

Hereby I inform the gas company that at the house of Mr. , residing , No. , I have erected gas fitting for lights, which, having proved perfectly tight on being examined, can now be fed with gas.

Hamburg, , 18.

Miscellaneous News.

The Electric Light.—On Wednesday evening, May 30, Mr. Staite again exhibited to the public generally the unrivalled brilliance of the new light. His apparatus for this occasion was carried to the summit of one of the piers of Hungerford Suspension-bridge, that, namely, on the Middlesex shore, and thence he threw the radiance of his magnificent discovery now along the bridge to the multitudes that watched from the Surrey shore the effects of the illumination, now upon the buildings which form Hungerford-market, and now upon the water front of Somerset-house, and upon Waterloo-bridge and the steamers passing up the river; but, wheresoever it lighted, the beam dazzled the beholder, whilst it discovered to its controllers the minute characteristics both of dress and architecture. The power of the light is well known; but what is interesting to all who desire the progress of scientific discovery, and the application of it to the uses of society, is, that Mr. Staite has been most successful in effecting and maintaining the relative adjustment of the two points, or opposite poles, which occasion the luminosity. This has been one grand desideratum, which, we believe, he has attained through means of the electric current itself, so that it is self-acting, and by apparatus even more economical of mechanic contrivance than we had the opportunity of witnessing. His efforts are now turned towards making his discovery economically applicable, and they have hitherto been most successful. It may be interesting to those who saw the brilliance of his light on Wednesday night, collected, as it was, into one focus by a reflector thrown behind, to know that the power of it is estimated at 750 candles. His apparatus constructed for domestic use gives a light equal to from eight to forty candles, with this singular advantage, that the blaze can be produced and retained under an air-tight glass shade, so as to prevent the possibility of ignition.—*Mining Journal.*

Self-lighting Gas-burner.—Among the inventions exhibited at the last *conversazione* at the Institution of Civil Engineers was a self-igniting gas-burner, by Mr. Strode, of St. Martin's-le-Grand. This is an adaptation of the zinc hydrogen, or Dobriener's light, to the purpose of lighting a jet or other burner of coal gas. In this case, however, the hydrogen gas is generated in an improved manner by the galvanic action of a small battery of amalgamated zinc and platinized silver plates, immersed in sulphuric acid, diluted largely with water. The hydrogen gas so generated is directed through a fine jet on a ball of spongy platinum, and, when ignited, moved across the coal-gas burner. The two cocks are ingeniously connected by means of a brequet movement; and an instantaneous light is thus produced by one movement of the hand. The effect is magical, and pretty in the extreme; and the apparatus, which is small and portable, is a very becoming burner for the office desk or library table, where we have no doubt it will be extensively used and appreciated, as soon as Mr. Strode shall have announced it as ready for general sale. So far, it has only been used privately in the experiment; but several months' constant use have served to prove its perfect uniformity of action. The safety it affords, by the avoidance of the use of lucifer-matches, is a consideration which will weigh with the prudent; and the ease with which it is lighted and extinguished will be very valuable, if only in the avoidance of unnecessary heat. For chambers, bedrooms, offices, and libraries, in private houses, and for the hall table at night, it is perfect and, above all, safe. It is also easily connected to the ordinary gas branches by a union connection fitting the common burner screw, and a flexible or other tube. Mr. Biddell's self-regulating burner was also much admired for the ingenious combination by which equality of flame was maintained under all pressures.

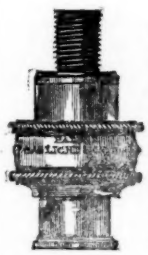
The Great Central Consumers' Gas Bill was finally withdrawn by Mr. Wire on the 14th of May, with the intimation that the application would be renewed during the next session of Parliament.

Domestic Gas Apparatus.—One or two individuals in Newport have lately devoted their inventive faculties to the production of gas from retorts of their own construction. Of these, one is Mr. Davies, hairdresser, Commercial-road, who, living in a street unlit by the gas which he, in common with his fellow-townsmen, pays for, taxed his brains to produce gas according to his abstract notions of the process. He was successful; and the retort, the valves, the whole apparatus, in fact, in connection with a miniature gasometer, which he erected in his kitchen and back premises, stood as the reward of his perseverance. On Wednesday evening, Mr. Davies had manufactured a supply of capital gas, which his new lamp over the door was ready to inform the public of; but, unfortunately, he proceeded to take off the mouthpiece of the retort after the gas had been generated and forwarded to the gasometer; and, while quietly unscrewing this mouthpiece, some of the remaining gas suddenly exploded; away went the strong nuts and screws, wrenched like straws; away went the mouthpiece across the kitchen, very nearly cutting Mr. Davies in two in its progress; and down fell all present, stunned, choked, and nearly annihilated by the explosion. When the smother cleared away a little, it was found that, while two or three had only run a risk of suffocation, Mr. Davies had received very serious damage about the face and eyes, one of the latter being pronounced by the surgeon, who was immediately called in, almost sightless; whilst Mr. Davies's son was much injured about the face.—*Monmouth Merlin.*

Photometers.—A very convenient and portable form of King's photometer has been submitted to us by Mr. Edge, the efficiency of which we have tested by experiment. The principal peculiarity of the apparatus, and that which distinguishes it from others, consists in having the disc *fixed* at ten inches from the candle: an arrangement which greatly facilitates calculation, as, instead of having a variable divisior of the square of the distance between the candle and the disc, it is only requisite to point off two figures to the right of the number expressing the square of the distance of the disc from the light to be measured. Thus, for example, suppose that distance to be 36 inches, then we have $36 \times 36 = 1296$; and, pointing off the two right-hand figures, the result is 12·96 candles.

Benzole Light.—Mansfield's very ingenious mode of applying this liquid hydrocarbon to artificial illumination was alluded to in our last number; and a reference to our present advertising columns will prove that the public have not been tardy in acknowledging its importance. We can scarcely go the length of the sanguine inventor in maintaining that it can compete with coal gas at the current prices, but we are quite prepared to admit its value for situations where oil and tallow are the only materials capable of being hitherto used for the production of artificial light.

Advertisements.



THE New Patent GAS LIGHT MONITOR, adapted to every description of Burner, and supplied at a cost placing it within the reach of every consumer of Gas, regulates the flame to any required height, economizing the consumption, and preventing the danger and inconvenience arising from the flaring and smoking of lights. It may be seen in daily use at the office of the Patentees, 20, King William-street, Charing-cross.

GAS, in which a great saving is to be effected by the use of the NEW PATENT GAS MONITOR.—STEVENS and SON, having made arrangements with the Patentees of the above very useful article, are manufacturing the same, and are prepared to supply the Trade wholesale, or Consumers, with any quantity they may require, and will send experienced workmen to fit the Monitor to any light where it is desirable to ensure a steady flame, rendered impossible to flare or smoke with any variation of pressure, and effecting an important reduction in the quantity of gas consumed, for which see Testimonials. Stevens and Son, Gas Engineers and Fitters, Darlington Works, 19, Southwark-bridge-road.

BY Her Majesty's Royal Letters Patent. — The UNIVERSAL PILOT GAS BURNERS, giving the purest and most powerful light of any burners ever yet submitted to the public, may be seen buring daily from nine to eight. They are constructed in strict accordance with the laws of pneumatics, thereby ensuring a perfect combustion of the most minute gaseous particles, without smoke, smut, or smell. The public may rest assured that all imitations of this Burner are utterly worthless.

TESTIMONIALS.

"The principle on which this Burner is constructed is truly scientific, and we doubt not it will meet with that demand to which its economy and advantages so justly entitle it."—*Mining Journal.*

"*Polytechnic Chemical School.*—In testing the Universal Pilot Gas Burner with one of the best shadowless burners, it gave a more pure and brilliant light, with a saving of from 20 to 25 per cent." Signed, George Crisp, Engineer.—August, 1846. The following low scale has been adopted:—

The Pilot, as used at Hartlepool Lighthouse, with glass complete - - - - - - - - - 10s. 6d.
Next size, a very powerful light - - - - - 6s. 6d.
Smaller size, perfectly shadowless, sufficient to light a good-sized room - - - - - - 5s. 0d.

☞ Patent Achromatic Blue Lamp or Gas Glasses, for preservation of sight. Pure Camphine Spirit, at 4s. 6d. per Gallon.

C. KNIGHT, Gas Fitter, 74, St. Martin's-lane, Charing-cross.—A liberal Discount to the Trade.

TO Engineers and Boiler-makers.— LAP-WELDED IRON TUBES for Marine and Locomotive Steam Boilers; Tubes for Steam, Gas, and other purposes; all sorts of Gas Fittings. The BIRMINGHAM PATENT IRON TUBE COMPANY, 42, Cambridge-street-crescent, Birmingham, and Smethwick, Stafford-hire, manufacture Tubes under an exclusive licence from Mr. Richard Prosser, the patentee. These Tubes are very extensively used in the Boilers of Marine and Locomotive Steam Engines in England and on the Continent; are stronger, lighter, cheaper, and more durable than brass or other copper tubes, and are warranted not to open in the weld.

42, Cambridge-street-crescent, Birmingham.

Works—Smethwick, Staffordshire. London Warehouse—68, Upper Thames-street.

THE Economic Gas-cooking Stove.— With this Registered Patent Apparatus, COOKING by GAS is performed with little trouble, cleanliness, and economy; and, if necessary, where there is no chimney. Those who have not seen how much heat can be obtained from a few jets of Gas, scientifically applied for Chemical, Manufacturing, or Culinary Purposes, are invited to inspect the different kinds of Apparatus at C. BICKET'S Manufactory, 5, Agar-street, Strand, opposite Charing-cross Hospital.

Second Edition.—Ninth Thousand.

A LETTER to the Right Hon. the Earl of CARLISLE on the COST and SUPPLY of GAS in the METROPOLIS. By a Civil Engineer.

London: W. Strange, 21, Paternoster-row; and all booksellers in town and country. Price 1s.; by post, 1s. 4d.

RAMSAY'S Garesfield Colliery, NEWCASTLE-UPON-TYNE.

COKING COAL and COKE of the best quality; superior CANNEL COAL, and FIRE GOODS of all descriptions.

Analysis of Garesfield Coke, by Dr. Richardson, of Newcastle:—

Carbon	97·60.
Ashes	1·55.
Sulphur	0·85.

Products of Ramsay's Newcastle Cannel Coal, as ascertained by Drs. Leeson and Miller, and G. H. Palmer, Esq.:—

Gas per Ton of Coal, cubic feet ..	9·667.
Specific Gravity	0·731.
Illuminating Power	1·85 to 2·03.

ordinary Newcastle Coal Gas being ·1.

Coke per Ton of Coal .. .. .. 13¼ cwt.

Office, Broad Chare, Newcastle-upon-Tyne; and 46, Fenchurch-street, London.

THE MOST PERFECT DRY GAS METER.

N. DEFRIES, Engineer, Inventor and Patentee, 10, Hampstead-road, and 67, St. Martin's-lane, London, having, by the SALE of nearly 30,000 METERS, established, beyond all doubt and precedent, their unequalled character, begs to direct the attention of the Gas Companies, the Gas Fitters, and the Public, to the following particulars:—That nearly 30,000 are now in action; that the powerful Chartered Gas Company have more than 6000 alone in use; that he has recently constructed, upon the order of the above Company, a Meter for the New Houses of Parliament, calculated to pass 10,000 feet of gas per hour, and to supply 2000 burners, and which has been pronounced by all the daily and weekly journals and the first men of the day to be the most magnificent measuring machine ever constructed by human hands; that a Meter of almost equal dimensions was recently constructed by him, also upon the order of the Chartered Gas Company, for the Italian Opera-house, Covent-garden, calculated to pass 6000 feet of gas per hour, and to supply 1500 burners, and which works with only the loss of one-half a tenth pressure; that he has supplied many large Meters to Government Offices, Public Companies, Club-houses, Churches, Chapels, Theatres, &c., too numerous to mention; that two large Meters have been in action at the Thames Tunnel night and day for five years, being equal to forty years of ordinary use; and the registration, being recorded daily, offers the most incontestable proof that, on the score of precision and durability, they stand unequalled; that these Meters have been proclaimed by the first scientific gentlemen of the day to be the surest tests that could be made; and eight years' flattering experience has proved them to be wholly free from all the evils and annoyances attendant upon the water meter, of the truth of which the annexed testimonial bears striking evidence:—

"Woolwich Protective Consumers' Gas Company,
"Jan. 15, 1849.

"Sir,—I have great pleasure in giving my testimony to the excellence of the dry meter, and think there is no comparison between that and the water meter, as regards the value of the two instruments. Experience confirms this opinion. We have had several hundreds of yours in work for nearly five years with the utmost success. They are perfect in registration, have no undulation in the lights, are free from the action of frost, and, above all, require no attention when once fixed. I have taken down several that have been at work for the above time, and, on testing them, found they registered as correctly as when first made. I am confident I cannot say too much in praise of dry meters; and that all gas proprietors who furnish pure gas would find it to their interest to use them only.

"J. THOMAS, Superintendent Engineer.

"To Mr. Defries."

Experimental Glazed Meters may be seen in action at
Mr. Faraday's, Wardour-street, Soho.
— Warris, Wardour-street, Soho.
Messrs. Dean and Dray, Arthur-street, London-bridge.
Mr. Baker, Manor-house, King's-road, Chelsea.
Institution of Civil Engineers, 25, Great George-street.
Royal Polytechnic Institution, Regent-street.
The Bank of England,
Mr. Boccius, Patent Light Office, 14, Duke-st., Adelphi.

And at the following Gas Fitters and Lamp Manufacturers:—
Mr. Deville, 367, Strand.
Messrs. Debaufer and Son, Creed-lane, Ludgate-hill.
— Dowson, 69, Welbeck-street.
— Brocklehurst and Co., 177, High Holborn.
— Huxley and Herlot, 16, Castle-street, Long-acre.
Mr. Hodder, 9, Tottenham-court-road,
— Kitchen, 60, Crawford-street, Marylebone.
— Rickets, 5, Agar-street, and 14, Threadneedle-st.
— Slater, 23, Denmark-street, Soho.
— Baker, Manor-house, Chelsea.
— Shirley, 3, Back-road, Ratcliff-highway.
— Gardner, 453, Strand.
— Carter, 41, Exeter-street, Portland-market.
— Petitt and Son, 17, Brook-street, New-road.
— Verity, 31, King-street, Covent-garden.
— Rothwell, 20, Cleveland-street.
— Williams, 14, Sloane-square, Chelsea.
— May, 21, Berwick-street.
— Edgar, 71, Marylebone-lane.
— Pilkington, 26, Great Marylebone-street.
— Greening, 15, West-street, Seven-dials.
— Harris, Wardour-street, Soho.
— Edgar Parkes, Fleet-street.

In conclusion N. Defries begs to say, that he has been extensively patronized by all the London and by most of the Provincial Gas Companies; that any or all of them will on application testify to the correctness, durability, and value of his Meters; that these Meters have been successfully introduced to the Continent, to America, and many of the Colonies; that they have proved themselves to be unvarying, correct, and durable instruments, and may be obtained at a small expense per annum of all Gas Companies who supply Meters to their customers; that they combine safety and economy, as no water is used, and require no attention when once fixed.

Testimonials, Lists of Prices, and every information may be obtained at either Factory, 10, Hampstead-road, or 67, St. Martin's-lane.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

CROLL and GLOVER, Patent Dry Gas Meter Manufacturers, Suffolk-street, CLERKENWELL-GREEN, LONDON, beg respectfully to call attention to the following extracts from testimonials in favour of their Meters. The respectability of the parties will be esteemed by all acquainted with gas matters as affording the most indubitable evidence of the superiority of their Patent Dry Gas Meters, proving that gas companies and gas consumers may rely on them for a just and unvarying registration, durability, and the absence of all trouble arising from condensation of water in the fittings, and the impossibility of their being stopped by freezing in the coldest climates.

CROLL and GLOVER take this opportunity of remarking to Gas Companies that the apprehension so generally entertained by them, viz., that if Dry Meters were introduced into their districts their Stock of Water Meters would be thrown on their hands, while this has not happened even with those Gas Companies who have for years back purchased none but Dry Meters; this apprehension ought to lead Gas Companies to a speedy investigation into the merits of Dry Meters, so that they may not, year after year, be increasing their stock of Water Meters, which they themselves apprehend must one day be thrown out of use.

CROLL and GLOVER humbly think that the following extracts prove that the merits of their Meter are entitled to prompt attention of Gas Companies.

Almost all the testimonials bear the date of November, 1848.

EXTRACTS.

"The Chartered Gas Company have purchased and fixed up above 2,000."—GEORGE LOWE, *Civil Engineer, F.R.S., &c., Consulting Engineer to the Chartered Gas Light and Coke Company, London.*

"We have in this district from seven to eight hundred, and are daily fixing more."—F. I. EVANS, *Superintendent at Chartered Gas Light and Coke Company's Station, Brick-lane.*

"I invariably found the flames perfectly steady, and the gas accurately measured."—A. H. STILL, *Superintendent at Chartered Gas Light and Coke Company's Station, St. Luke's.*

"I beg to state that out of 800 Meters of the square form, and anti-corrosive metal, I find only twenty have been entered in our return-book, chiefly for broken index-glasses. The company are continuing to purchase and fix up your Meters in considerable quantities."—WILLIAM MONRO, *General Superintendent and Engineer of the Phœnix Gas Light and Coke Company, London.*

"I have much pleasure in stating that the Meters we have received with your last improvements have given great satisfaction."—JOHN AIRD, *Superintendent of the Phœnix Gas Light and Coke Company's Station, Greenwich.*

"I have had some of them in use for nearly four years. In certain situations exposed to the influence of the climate I have found them to be the only description fit for use, as well as in confined and overheated situations, where the water in the Water Meters is acted upon by evaporation."—ROBERT LAING, *Secretary and Superintendent of the Independent Gas Light and Coke Company, London.*

"Having had, in all, up to the present time under my inspection 609 Meters of your manufacture, a very good opportunity has thus been afforded me of judging of their merits. The result of my observation in respect of registration and steadiness of light is, that the Meters have given perfect satisfaction."—D. METHVEN, *Engineer and Superintendent to the Commercial Gas Light and Coke Company, London.*

"The advantages which I have found attending the use of your Dry Gas Meters, in preference to the Wet Meters, are so important, that nothing would induce me to return to the use of the latter. As Station Meters yours have the additional advantage, that there is no water-line to attend to, or to be subject to neglect."—CHARLES DIXON, *Engineer of the Chichester Gas Light and Coke Company.*

"I have also had sufficient opportunity of knowing that they are not affected by the most severe frost, nor where one of them was fixed did I ever know of condensation taking place in the inside gas fittings of any premises."—SAMUEL PONTIFEX, *Manager, Winchester Gas Light and Coke Company.*

"We are now using your Meters solely."—CHARLES PURVES, *Manager, Gas Works, Gosport.*

"They are a substantial and good article, of superior workmanship and material; they do their work exceedingly well and, after being once fixed, they occasion no further trouble. I assert that they do not alter in their measurement, as does the Water Meter."—J. THOMAS, *Manager, Consumers' Protective Gas Light Company, Woolwich.*

"Previous to using them I held theoretical objections, which I can now say have been removed, and their superiority as an instrument of unvarying measuring capacity has been fully established."—EDWARD H. THORMAN, *Superintendent of the West Ham Gas Company.*

"I have delayed giving my opinion of your Meters until I had had another winter's experience; and, notwithstanding some of them were placed in the open air, not one became fixed. We have had a short winter, but the frost is very severe."—P. T. W. de TIMMERMAN, *Director of the City of Leyden Gas Works.* January 26, 1849.

Station Meters, Station Governors, Pressure Registers, Experimental Meters, and Specific Gravity Apparatus.

CANNEL COAL.

JOHN HENDERSON and CO. respectfully invite the attention of Managers of Gas-works to the annexed Report by Professor Fyfe upon their PARROT or CANNEL COAL, which continues to be shipped at Burntisland to any extent. Price 10s. per ton, f. o. b.

Apply to Messrs. R. W. KENNARD and Co., 67, Upper Thames-street, London; or to JAMES CONNEL, Shipping Agent, Burntisland.

Lochgelly Coal and Iron Works, by Burntisland, March, 1849.

REPORT ON THE VALUE OF LOCHGELLY PARROT COAL FOR THE MANUFACTURE OF GAS.

In the trials made with this Coal 14 lbs. of coal were carbonized. The quantity of gas given off was estimated by meter; the illuminating power of the gas was ascertained by the chlorine test, the durability by meter—consuming the gas with a single jet of 1·33 of an inch diameter, and with a 5-inch flame. The specific gravity was taken in the usual way.

The following are the results, being the average of several trials:—

Cubic feet of gas	9123·	per ton of coals.
Illuminating power of gas	14·5	candles.
Durability	65·30	minutes.
Specific gravity of gas	567·	

The Lochgelly Coal may be considered as a fair average quality of Parrot Coal; for, though it is beneath the Lesmahago Coal, not only as regards the quantity of gas afforded, but also as to the illuminating power and durability of the gas, yet it is equal to the average quality of the Parrot Coal of the Lothians and of Fifeshire.

It is much more valuable than the English Caking Coal and English Parrot Coal now in general use, in regard to their relative value for the amount of light afforded by the combustion of their gases, as the following table will show:—

COALS.	Cubic Feet of Gas from Ton of Coal.	Illuminating Power of Gas by Chlorine Test.	Durability of Gas with Jet of 1·33 of an Inch.		Comparative Value of the Coals according to the Light afforded by the Consumpt of their Gases.	
			Min.	Sec.		
English Caking Coal	8000	4·33	40	24	1·	—
English Parrot ditto	9500	7·6	44	0	...	1·
Lochgelly ditto	9123	14·5	65	30	6·18	2·71

Accordingly, the Lochgelly Coal is, on an average, more than six times the value of English Caking Coal, and more than twice and a half as valuable as the average of English Parrot Coal, for affording light by the combustion of their gases.

A ton of Lochgelly Coal leaves 1200 lbs. of coke.

In the above estimate the value of the ammoniacal liquor, tar, &c., is not taken into account.

A. FYFE, Professor of Chemistry,

Feb. 28, 1849. King's College University, Aberdeen.

BRYMBRO Iron Works, Foundry, and COLLIERY, near WREXHAM, NORTH WALES. Shipping Ports:—Birkenhead, and Saltney, near Chester, on the river Dee.

Report of Experiments made at the Wrexham Gas Works on the 3rd, 4th, and 5th, and at the Chester Gas Works on the 6th and 7th, of August, 1848, upon the Gas Coals raised at the Brymbo Colliery, by Mr. A. WRIGHT, Gas Engineer, London,

At one work Fire-clay Retorts were used at a high temperature; at the other Iron Retorts at a moderate temperature; the results are, therefore, given separately, Clay and Iron being given as synonymous with high and moderate heats.

TWO YARD COAL.

CLAY RETORTS, 2 cwt. charge. 5½ hours.

Per Ton:
- Gas Cubic Feet 8880.
- Sp. Gr. first of Charge ·596 } Mean Sp. Gr. 463. 5 feet per hour, equal to 15 candles.
- middle „ ·462 }
- last „ ·300 }
- Gas by Weight 294·94 lbs.
- Tar 70 „
- Coke 12 cwt. 22 lbs.

The Coke of very superior quality.

POWELL COAL.

CLAY RETORTS, 2 cwt. charge. 5 hours.

Per Ton:
- Gas Cubic Feet 10165.
- Sp. Gr. first of Charge ·586 } Mean Sp. Gr. 459. 5 feet per hour, equal to 14·88 candles.
- middle „ ·456 }
- last „ ·428 }
- Gas by Weight 337·8 lbs.
- Tar 70 „
- Coke 11 cwt. 56 lbs.

POWELL COAL.

IRON RETORTS, 1½ cwt. charge. 5 hours.

Per Ton:
- Gas Cubic Feet 8250.
- Sp. Gr. first of Charge ·560 } Mean Sp. Gr. 470, equal to 15·3 candles, at 5 feet per hour.
- middle „ ·465 }
- last „ ·300 }
- Gas by Weight 295·6 lbs.
- Tar 105·0 „
- Coke 11 cwt. 56 lbs.

This Coal yields Gas very easily, of a good quality, and at a moderate heat. The Coke is also, though small, very good. It is therefore well fitted for those who use Iron Retorts and require a superior Gas.

London: Printed by THOMAS GREAVES BARLOW, of 32, Bucklersbury, parish of St. Stephen, Walbrook (at the office of Palmer and Clayton, 10, Crane-court, Fleet-street); and published by him at the Office, No. 21, Paternoster-row, in the parish of St. Faith, all in the City of London.—Monday, June 11, 1849.